## CLAIMS

We claim:

1. A brake system for an elevator car (16) comprising:

a ropeless and sheaveless stopping mechanism (10) responsive to an electronic control signal to automatically stop an elevator car (16) under predetermined conditions.

2. The system of claim 1 wherein said stopping mechanism (10) is resettable from a remote location in response to an electronic reset signal.

3. The system of claim 2 wherein said stopping mechanism (10) includes at least one set of safety wedges (18) adapted to be positioned on opposing sides of a guide rail (20) and a safety housing (12) that cooperates with said set of safety wedges (18) to apply a braking force to said guide rail (20) when said safety wedges (18) move from a non-deployed position to a deployed position.

4. The system of claim 3 wherein said stopping mechanism (10) includes a first latching device (26) for holding said safety wedges (18) in said non-deployed position, a second latching device (28) for locking said safety wedges (18) in said deployed position, and at least one spring (24) associated with said safety wedges (18) to move said safety wedges (18) from said non-deployed position to said deployed position once said first latching device (26) is released in response to said electronic control signal.

5. The system of claim 4 wherein said first (26) and second (28) latching devices each comprise a solenoid.

6. The system of claim 4 including an actuator (22a) operably coupled to said spring (24) to return said spring (24) and the corresponding safety wedge (18) to a non-deployed position in response to said electronic reset signal.

7. The system of claim 6 including a connector (32) for connecting the spring (24) to said actuator (22a), wherein said connector (32) is automatically disengaged from said actuator (22a) when said safety wedges (18) are in said non-deployed position and is automatically engaged to said actuator (22a) when said safety wedges (18) are in said deployed position.

8. The system of claim 3 including at least one spring (24) associated with said safety wedges (18) and a connector (32) for connecting said springs (24) to an actuator (22b).

9. The system of claim 8 wherein said actuator (22b) comprises a carrier plate mounted for movement with said connector (32), a motor (40) supported by a car frame (14), a gear box (42) associated with an output of said motor (40), and an electromagnet (46) coupled to a linear screw (44) driven by said gear box (42), said carrier plate (48) being selectively coupled with said electromagnet (46) when said screw (44) moves said electromagnet (46) into engagement with said carrier plate (48) to reset said carrier plate (48) after said carrier plate (48) has been deployed.

10. The system of claim 1 wherein stopping mechanism (10) comprises an emergency stopping mechanism for an elevator safety system, said emergency stopping mechanism being responsive to said electronic control signal to automatically stop the elevator car (16) when a car speed exceeds a predetermined threshold speed.

11. A method for activating a braking system for an elevator car comprising the steps of:

(a) identifying a need for an elevator braking operation; and

(b) generating an electronic control signal to activate a ropeless and sheaveless stopping mechanism (10) to prevent movement of an elevator car (16) subsequent to step (a).

12. The method of claim 11 including the step of selectively resetting the stopping mechanism (10) from a remote location subsequent to performing step (b).

13. The method of claim 11 wherein the stopping mechanism (10) comprises an emergency stopping mechanism and step (a) further includes identifying an undesirable operating condition.

14. The method of claim 13 including the steps of fixing a safety housing (12) for movement with the elevator car (16), positioning safety wedges (18) on opposing sides of a guide rail (20), and mounting the safety wedges (18) and housing (12) for movement with the elevator car (16) and wherein step (b) includes moving the safety wedges (18) from a non-deployed position to a deployed position.

15. The method of claim 14 including the step of forcing the safety wedges (18) into frictional engagement with the guide rail (20) as the safety wedges (18) move from the non-deployed position to the deployed position.

16. The method of claim 15 including the steps of latching the safety wedges in the non-deployed position with a first latch mechanism (26), coupling at least one spring (24) to each of the safety wedges (18) to move the safety wedges (18) from the non-deployed position to the deployed position once the first latching device (26) is released in response to the electronic control signal, and latching the safety wedges (18) in the deployed position with a second latch mechanism (28) once the first latching mechanism (26) is released.

17. The method of claim 16 including the step of connecting the springs (24) to a linear actuator (22a) to return the springs to a non-deployed position in response to an electronic reset signal.

18. The method of claim 15 including the steps of coupling at least one spring (24) to the safety wedges (18), mounting a carrier plate (48) for movement with the springs (24), and controlling movement of the carrier plate (48) with a solenoid actuator (22b).

19. The method of claim 18 including the steps of activating the solenoid actuator (22b) to overcome the spring force of the springs (24) by holding the carrier plate (48) and the safety wedges (18) in the non-deployed position with an electromagnet (46), and releasing the electromagnet (46) from an initial position causing the springs (24) to move the safety wedges (18) into the deployed position in response to identification of an undesirable elevator operating condition.

20. The method of claim 19 including the steps of driving the electromagnet (46) into engagement with the carrier plate (48) in response to a reset signal, activating the electromagnet (46) to couple the carrier plate (48) to the electromagnet (46), and compressing the springs (24) by moving the carrier plate (48) and electromagnet (46) to the initial position to return the safety wedges (18) to the non-deployed position.

21. The method of claim 20 further including the step of coupling the electromagnet to an electric motor and gear box to control linear movement of the electromagnet.